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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,511	02/07/2006	Soichi Kuwahara	09792909-6161	9094

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CHICAGO, IL 60606-1080

EXAMINER
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ZIMMERMANN, JOHN P

ART UNIT	PAPER NUMBER
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2861

MAIL DATE	DELIVERY MODE
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06/26/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/531,511	<b>Applicant(s)</b> KUWAHARA ET AL.	
	<b>Examiner</b> John P. Zimmermann	<b>Art Unit</b> 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 & 3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings were originally objected to as failing to be designated properly. The drawings submitted 13 March 2008 address the original objections and the replacement sheets are accepted and the objection has been withdrawn.

### ***Response to Amendment***

2. With respect to applicant's Amendments to the claims:
  - a. **Claims 1 & 3** have been amended and considered as such.
  - b. **Claim 6** has been cancelled as requested.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

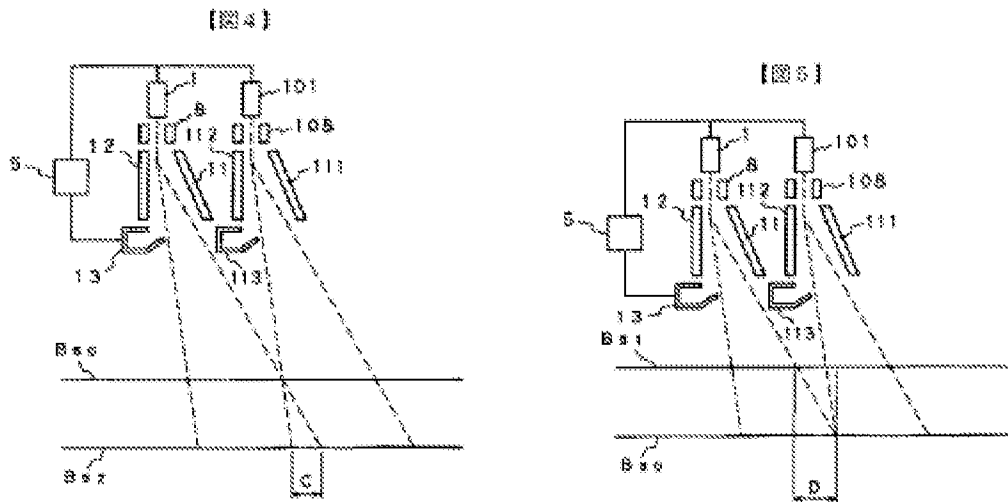
4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

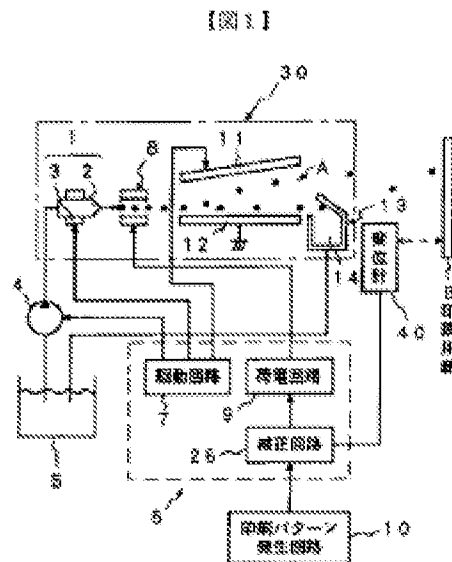
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 1 & 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yoshiyama et al.**, (JP 07-081065 A) in view of **Nakano** (JP 2000-185403).

a. As related to independent **claim 1**, Yoshiyama et al. teach a liquid discharge apparatus comprising (Yoshiyama et al. – Abstract): a head in which a plurality of liquid discharge sections are arrayed (Yoshiyama et al. – Abstract; Machine Translation, Detailed Description, Paragraph 40; and Figure 4, Reference #1 & #101, shown below) and a discharge direction deflection unit configured to deflect a liquid discharged from at least one nozzle in the direction of the array of said liquid discharge sections (Yoshiyama et al. – Abstract; Machine Translation, Detailed Description, Paragraph 14; and Figures 4-5, Reference #11, #12, #111, & #112, shown below).



- b. Continuing with **claim 1**, Yoshiyama et al. teach a distance detection unit [i.e. laser displacement gage] to detect the distance between a liquid discharge surface of said head and a liquid landing surface of a liquid discharge target (Yoshiyama et al. – Abstract; Machine Translation, Detailed Description, Paragraph 18; and Figure 1, Reference #40, shown below) and a discharge deflection amount determination unit configured to determine the amount of liquid discharge deflection required by said discharge direction deflection unit as detected by said distance detection unit (Yoshiyama et al. – Abstract; Machine Translation, Detailed Description, Paragraphs 12 & 20; and Figure 1, Reference #6, #9, #30 & #40, shown below).

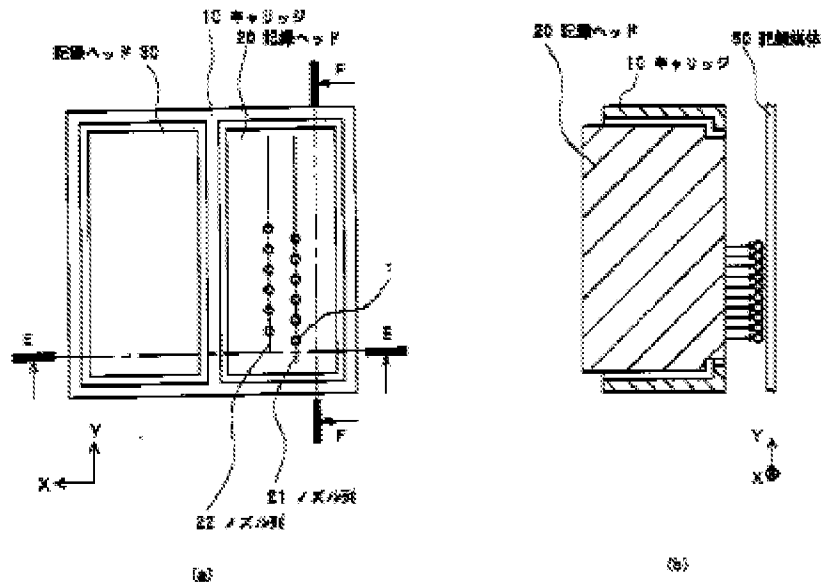


c. Continuing with **claim 1**, while Yoshiyama et al. teach a plurality of nozzles (Yoshiyama et al. – Abstract; Machine Translation, Detailed Description, Paragraph 40; and Figure 4, Reference #1 & #101, shown above), Yoshiyama et al. **do not** specifically teach a plurality of nozzles arrayed in each of the liquid discharge sections or the discharge direction deflection unit being incorporated with heat generation units.

**However**, Nakano teaches an ink-jet recorder with an ink jet cartridge an ink jet head and a plurality of ink jet nozzles to include a plurality of nozzles arrayed in each of the liquid discharge sections (Nakano – Title; Abstract; Machine Translation, Detailed Description, Paragraph 85; and Drawings 19a-19b, Reference #t, #20, & #30, shown below).

Nakano - Drawing 19

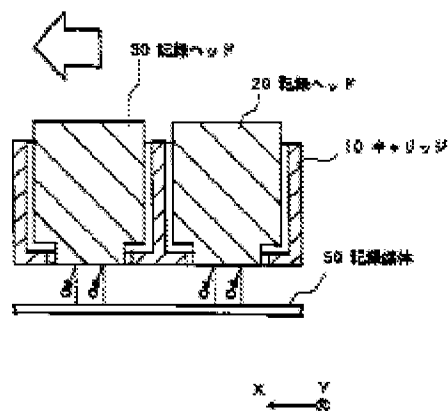
【図19】



d. Continuing with **claim 1**, Nakano teaches a liquid chamber [i.e. ink container] in each of the liquid discharge sections and the liquid chamber is effective to contain the liquid to be discharged (Nakano – Abstract; Machine Translation, Detailed Description, Paragraph 85; and Drawing 20, Reference #20 & #30, shown below).

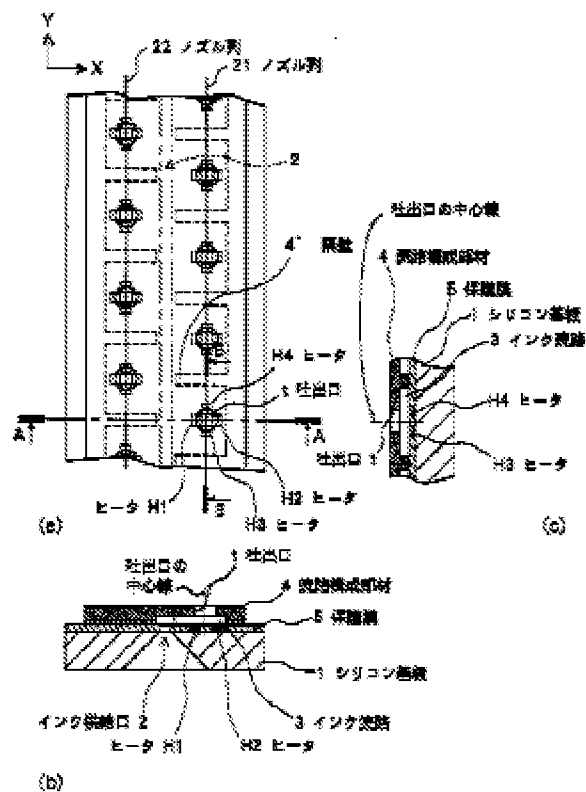
Nakano -  
Drawing 20

【図20】



e. Continuing with **claim 1**, Nakano teaches a plurality [i.e. two or more] of heat generation units arrayed in the direction of the liquid discharge section array within the liquid chamber (Nakano – Abstract; Machine Translation, Detailed Description, Paragraphs 15-17; and Drawings 1a-1c, Reference #H1 - #H4, shown below).

Nakano - Drawing 1 [ 1 ]

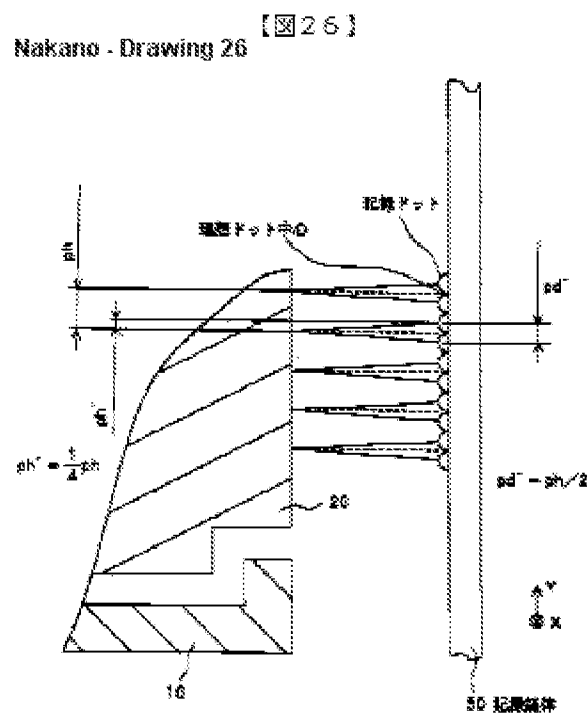


f. Continuing with **claim 1**, Nakano teaches at least two heat generation units are positioned within said liquid chamber such that the heat generation units [i.e. heaters] generate heat effective to cause the liquid to discharge from at least one of the plurality of said nozzles, and said discharge direction deflection unit generates a heat timing differential between two of said plurality of heat generation units which is effective to



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deflect the direction [i.e. control the direction in one dimension (X or Y) or two dimensions (X & Y)] of a liquid discharged from one of the plurality of said nozzles (Nakano – Abstract; Machine Translation, Detailed Description, Paragraphs 15-17, 21, 25, 26, & 73-74; and Drawings 19a-19b, Reference Arrows, shown above; and Drawing 26, Reference Ink Deflection Directions, shown below).



Given the same field of endeavor, specifically an ink jet printing apparatus with a liquid discharge direction deflection unit, it is apparent that one of ordinary skill in the art at the time the invention was made would have been motivated to combine the ink jet printing apparatus with a the discharge direction deflection unit consisting of a deflection electrode system as taught by Yoshiyama et al. with the ink jet printing apparatus with a the discharge direction deflection unit consisting of a plurality of heat generation units as

taught by Nakano, in an effort to control the problems with the discharge direction of the liquid without an increase in cost while effectively controlling the ink discharge direction in all the directions in two dimensions (Nakano – Title; Abstract; Machine Translation, Detailed Description, Paragraphs 4-6 & 13-17).

g. As related to dependent **claim 3**, the previous combination of Yoshiyama et al. and Nakano remains as applied to **claim 1**. Additionally, Yoshiyama et al. teaches the distance detection unit comprises a sensor configured to read information about light, pressure, displacement, or other physical quantity [i.e. light sensing portion] and the sensor detects the distance between the liquid discharge surface of said head and the liquid landing surface of the liquid discharge target [i.e. print sheet] (Yoshiyama et al. – Abstract; Machine Translation, Detailed Description, Paragraphs 11 & 19; and Figure 1 , Reference #30 & #40, shown previously).

### ***Response to Arguments***

7. Applicant's arguments with respect to **claims 1 & 3** have been considered but are moot in view of the new ground(s) of rejection.

8. Applicant amended the independent claim to add further, non-claimed limitations including “a plurality of ink jet nozzles to include a plurality of nozzles arrayed in each of the liquid discharge sections,” “a liquid chamber in each of the liquid discharge sections and the liquid chamber is effective to contain the liquid to be discharged,” and “a plurality of heat generation units arrayed in a direction of the liquid discharge section array and at least two heat generation units are positioned within said liquid chamber such that the heat generation units generate heat effective to cause the liquid to discharge from at least one of the plurality of said

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nozzles, and said discharge direction deflection unit generates a heat timing differential between two of said plurality of heat generation units which is effective to deflect the direction of a liquid discharged from one of the plurality of said nozzles.” Applicant argues that “This is clearly unlike Yoshiyama, which fails to disclose a discharge direction deflection unit which generates a heat timing differential between two of said plurality of heat generation units which is effective to deflect the direction of a liquid discharged from one of the plurality of said nozzles...” Due to the amendments, a further search and review of prior art of record was necessitated thereby producing a new grounds of rejection. In response to applicant’s argument that “Yoshiyama fails to disclose a discharge direction deflection unit which generates a heat timing...” Examiner has provided a new ground(s) of rejection that specifically address the newly incorporated limitations of amended **claim 1**, and applicant is requested to see the rejection detailed above for further response to applicant's argument of patentability. As no further arguments were made, dependent **claim 3** has been rejected accordingly.

### ***Conclusion***

9. ***Examiner's Note:*** Examiner has cited particular Figures & Reference Numbers, Columns, Paragraphs and Line Numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of

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the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Zimmermann whose telephone number is (571)270-3049.

The examiner can normally be reached on Monday - Thursday, 7:00am - 5:00pm.

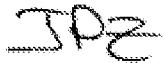
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LUU MATTHEW/

Supervisory Patent Examiner, Art Unit 2861

A handwritten signature in black ink, appearing to be 'JPZ', written over a horizontal line.

JPZ